CLAIMS

What is claimed is:

1. A method for evaluating parameters of a drum design for use in a helical scan tape device comprising the steps of:

(a) receiving said parameters wherein said parameters include position of a first read head on said drum;

(b) simulating the reading of one track of a plurality of tracks by calculating the geometric area said first read head would cover as it scans over said track of predetermined dimensions;

(c) determining the amount of overlap of said geometric area as a percentage of the area defined by said predetermined dimensions of said track;

(d) determining that the simulated read is successful when said percentage is greater than a predetermined coverage threshold value;

(e) repeating steps (b) through (d) for each of said plurality of tracks; and

(f) determining that said parameters are effective for a drum design when a number of said plurality of tracks for which the simulated read was determined to be successful is greater than a predetermined error rate threshold value.

2. The method of claim 1 wherein said parameters includes position of a second read head on said drum, and

wherein the step of simulating further comprises the step of simulating the reading of said track by calculating the combined geometric area that would be covered by said first read head and by said second read head as they scan over said track, and

wherein the step of determining the amount of overlap comprises the step of determining the amount of overlap of said combined geometric area as a percentage of area defined by said predetermined dimensions of said track.

3. The method of claim 1 wherein said parameters includes positions of a plurality of read heads on said drum, and

wherein the step of simulating further comprises the step of simulating the reading of said track by calculating the combined geometric area that would be covered by said plurality of read heads as they scan over said track, and

wherein the step of determining the amount of overlap comprises the step of determining the amount of overlap of said combined geometric area as a percentage of area defined by said predetermined dimensions of said track.

4. The method of claim 1 wherein said parameters include a nominal tape speed and wherein the method further comprises the steps of:

(g) varying said tape speed from said nominal tape speed parameter value to generate an alternate tape speed value; and

(h) repeating steps (b) through (g) for each of a plurality of alternate tape speed values.

5. The method of claim 4 wherein said the step of varying comprises the step of:

generating said alternate tape speed values as values less than or equal to 1X speed of said tape device.

6. The method of claim 1 wherein said parameters include a nominal gap width and wherein the method further comprises the steps of:

(g) varying said gap width from said nominal gap width parameter value to generate an alternate gap width value; and

(h) repeating steps (b) through (g) for each of a plurality of alternate gap width values.

7. The method of claim 1 wherein said parameters include a nominal head offset spacing and wherein the method further comprises the steps of:

(g) varying said head offset spacing from said nominal head offset spacing parameter value to generate an alternate head offset spacing value; and

(h) repeating steps (b) through (g) for each of a plurality of alternate head offset spacing values.

8. A method for evaluating parameters of a drum design for use in a helical scan tape device comprising the steps of:

(a) receiving said parameters wherein said parameters include a position of a first read head on said drum and a position of a second read head on said drum;

(b) simulating the reading of one track of a plurality of tracks by calculating a first geometric area said first read head would cover as it scans over said track of predetermined dimensions and by calculating a second geometric area said second read head would cover as it scans over said track;

(c) determining the amount of overlap of said first geometric area as a first percentage of the area defined by said predetermined dimensions of said track and the amount of overlap of said second geometric area as a second percentage of the area defined by said predetermined dimensions of said track;

(d) determining that the simulated read is successful when either said first percentage is greater than a predetermined coverage threshold value or said second percentage is greater than said predetermined coverage threshold value;

(e) repeating steps (b) through (d) for each of said plurality of tracks; and

(f) determining that said parameters are effective for a drum design when a number of said plurality of tracks for which the simulated read was determined to be successful is greater than a predetermined error rate threshold value.

9. The method of claim 8 wherein said parameters include a nominal tape speed and wherein the method further comprises the steps of:

(g) varying said tape speed from said nominal tape speed parameter value to generate an alternate tape speed value; and

(h) repeating steps (b) through (g) for each of a plurality of alternate tape speed values.

10. The method of claim 9 wherein said the step of varying comprises the step of:

generating said alternate tape speed values as values less than or equal to 1X speed of said tape device.

11. The method of claim 8 wherein said parameters include a nominal gap width and wherein the method further comprises the steps of:

(g) varying said gap width from said nominal gap width parameter value to generate an alternate gap width value; and

(h) repeating steps (b) through (g) for each of a plurality of alternate gap width values.

12. A helical scan drum for use in non-tracking tape storage subsystem, said drum comprising:

a first read head on the circumference of said drum; and

a second read head on the circumference of said drum wherein said second read head is positioned on said drum such that said second read head overscans a track following said first read head within a single rotation of said drum and wherein said second read head is positioned on said drum such that the area read by at least one of said first read head and said second read head covers the area of said track by at least a predetermined coverage threshold value.

13. The drum of claim 12 wherein said first read head and said second read head are positioned on said drum such that they overlap to form an effective scan width of at least 100% of the recordable area of the tape medium.

14. The drum of claim 12 wherein the positions of said first read head and said second read head enable overscan of said track to read a tape medium at approximately 1X speed on a tape device devoid of tracking circuits.

15. A helical scan drum for use in non-tracking tape storage subsystem, said drum comprising:

a first read head on the circumference of said drum; and

a second read head on the circumference of said drum

wherein said second read head is positioned approximately 180 degrees radially around the circumference of said drum from said first read head, and

wherein said first read head has a head width spanning from an upper edge to a lower edge of 15 microns, and

wherein said second read head has a head width spanning from an upper edge to a lower edge of 15 microns, and

wherein said second read head is positioned on said drum such that said upper edge of said second read head has a head offset spacing of 0 microns from said lower edge of said first read head.